Community Health Cell.

COMMUNITY BIODIVERSITY REGISTER

Centre for Ecological Sciences
Indian Institute of Science
Bangalore -12

July 1995

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Library and Documentation Unit
BANGALORE

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A. INTRODUCTION

It has been aptly said that we must treat the resources of the earth, not as an inheritance from our forefathers, but as if borrowed from our descendants. People would thus treat natural resources prudently only if they themselves feel a long term stake in the health of the resource base. Not all constituents of the society are likely to share in such a perspective. There are some with access to resources from many different parts of the country, if not the world who may be happy enough to exhaust, to despoil resources of one locality, making abundant profits in the process and then move on some place else. On the other hand, there are many others, especially in a biomass based civilization such as ours, who are rooted in a locality and are dependent day after day, year after year on the natural resources of a limited terrain near their habitation. Such are the landless, the artisans and the small farmers who must build their huts from stones, mud and bamboo gathered with their own hands, thatch them with grass or coconut leaves available nearby, and fire their hearth with dung, crop residues or sticks collected from public lands. These constitute a significant majority of India's rural population, who have a genuine stake in the good management of the country's resource base. They are also practical ecologists, continually interacting with the natural world as they strive to make a living. Thus, fisherfolk fishing India's streams and rivers know far more than any others, including trained scientists, of the ongoing changes in the water courses and their snail, crab, fish faunas. This motivation and this knowledge is today ignored, slighted, and in consequence fast disappearing. It is vital that we work towards putting it to good use in taking good care of our land, our waters and our living heritage.

There is an increasing awareness of this necessity, and many moves to involve the masses of

common people of India's countryside in controlling and managing the natural resources. These 2moves include constitution of user groups in irrigation projects and joint management of forest lands. The significant new initiative of Panchayati raj in all parts of India visualizes the village panchayats playing a key role in the management of local natural resources. At an international level, Convention on Biological Diversity recognizes living resources of any country as its national patrimony and urges national governments to respect the role of indigenous communities in the conservation of these resources while instituting mechanisms to share with them benefits of their utilization

It is then the need of the hour to create institutions and mechanisms for actively involving local communities in good management of natural resources, encouraging their traditions of conservation of biological diversity, and recording and putting to good use their practical ecological knowledge. The initiative of the Community Biodiversity Register (CBR) is an attempt in this direction. The CBR would try to create an information base for (a) promoting prudent management of local natural resources involving local communities as active partners, as well as for (b) ensuring that local people receive adequate recognition, including possibilities of a share in profits if their knowledge forms the basis of commercial utilization. The CBR would treat as a unit a community of people staying together in one hamlet, or one village and in regular face-to-face contact with each other. The spatial coverage of CBR would encompass the resource catchment of such a community. By this resource catchment we mean the area from over which members of the community bring in plants, animals or earth resources such as building stones or lime by exercise of their own labour. This would include both cultivated and other private as well as public lands. They may of course obtain resources from many further off places through purchase on the market. Areas from which such resources come are excluded from the community's resource catchment for the purpose of the CBR. The resource catchment thus defined need not be a single contiguous

tract, but may include several discontinuous areas.

The CBR would try to document the status, current pattern of use, ongoing changes, and likely future changes for all the various elements of land and water making up the resource catchment. Such a mosaic of repeated occurrence of various elements of land and water such as paddy fields, coconut orchards, open scrub, open woodland, dense evergreen forest, streams, ponds constitutes a landscape. One may of course recognize many different types of elements in a landscape depending on the spatial scale. For the purpose of natural resource management it is reasonable to recognize as a distinct element a piece of land or water covering an area of a quarter of hectare or more and supporting a distinct type of vegetation. The appendix gives a system of classification of landscape element types that may be used with appropriate modification. Each individual element belonging to a particular type, for instance, each individual pond, belonging to the landscape element type, pond would then be the spatial unit for the purpose of CBR. Local communities will invariably have some specific name, such as tavarekere (= lotus pond) or Kannappan kere (= Kannappa's pond) for each such unit. Mapping the total landscape constituting the overall resource catchment of the community indicating the local name for each element of the landscape would be an important initial step in the development of the CBR.

Just as the landscape, the human communities of the Indian countryside are diverse. Each focal community of a CBR exercise is likely to include households which may exhibit very different levels of dependence on a wide range of natural as well as human resources. Thus the community may include some fisherfolk, some paddy cultivators, some coconut orchard owners, some landless farm labourers, some carpenters, some barbers and so on. Furthermore, even within a household, there may be age and gender based differences, with older men working as masons while women may grow vegetables, weave mats with younger girls being involved in collecting shellfish. For the

purposes of CBR then it is necessary to recognize these different relationships of human with resources in terms of resource user groups.

The CBR exercise would then involve recording uses, knowledge, perceptions of ongoing changes and perception of desirable changes of the different resource user groups as well as notable individuals making up the human communities in relation to the different types of plant, animal and earth resources. This documentation of various use practices including practices promoting conservation and sustainable use, as well as knowledge, skills, technologies could form a useful basis for giving due recognition to the communities as also specific notable individuals in contexts such as assertion of intellectual property rights. The documentation would also permit recognition of ongoing undesirable changes, such as non-sustainable harvests of some medicinal plants or siltation of ponds. This would be complemented by the set of possible solutions suggested by various local communities, along with their perceptions of relative priorities of action. This could form a useful basis for careful, locality specific, people oriented planning of prudent use of natural resources within the resource catchment of the local community.

B. THE PURPOSE

1. Creation of awareness about current levels of biodiversity within the resource catchment (i.e., the area over which the community meets the bulk of its biomass requirements) of a community, its uses, and associated knowledge systems, skills and technology, through a systematic survey of the entire landscape and of various resource user groups making up the human community.

2. Generation of awareness about the ongoing and likely commercial exploitation of local living

and earth resources, of indigenous knowledge systems and to promote a discussion of strategies of sustainable use of such resources, including issues of regulation of access.

3. Promotion of measures for conservation and enhancement of local biodiversity in the various landscape elements of the resource catchments by identifying specific problems and possible solutions.

4. Stimulating discussion on the development aspirations of different resource user groups of the community relating to various sectors like drinking water, health, education, livestock, agriculture coming under the purview of panchayat raj system. Such a discussion should also include various ongoing of future development plans by Panchayt Raj institutions, government departments relavent to the locality. It should also recognize beneficial or deleterious implications of such developments for plans of conservation/enhancement of existing levels of biodiversity in various landscape elements of the resource catchment.

5. Understanding the priorities of the community as a whole and also of specific user groups and local institutions with respect to conservation and enhancement of local biodiversity, management of earth resources within their resource catchment and formulation of an action plan to be taken up in this regard.

C. VILLAGE PROFILE

1. Locality and access details

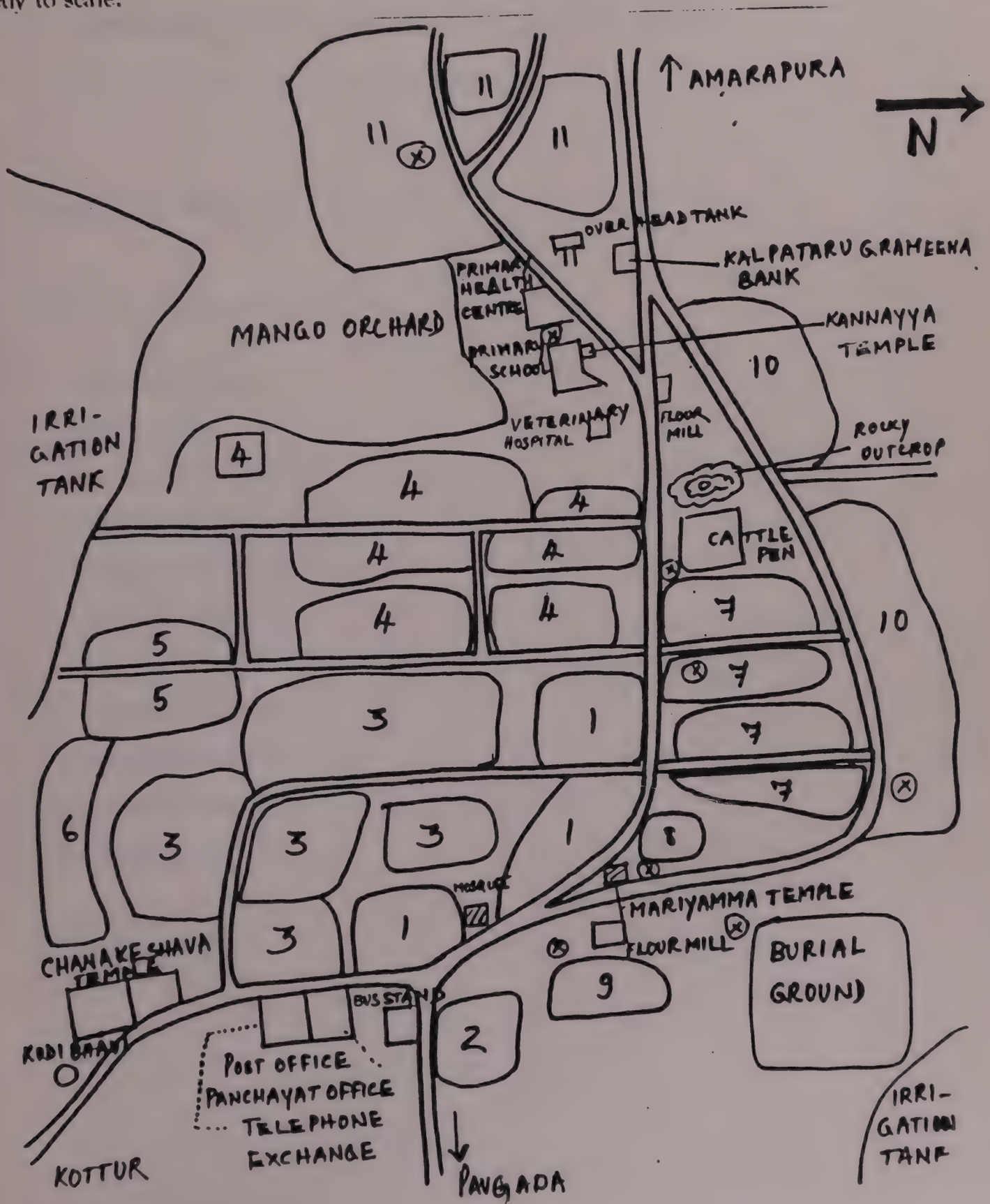
Name of the hamlet / settlement / ward Altitude range (-----m to -----m) Distance from a tar road / main road / market place	
Name of the revenue village of which the hamlet/settlement/ward is a part	
Census code no.	
Name of the block / panchayat	
Taluk	
District	
State	
PIN code (Use map if possible to show location)	

Note : Census code number is to be recorded from the official census. This will help to distinguish between villages with a common name.

Map to be attached need not be to the scale but it should indicate the location of the village with relation to other villages/towns.

2. Village habitation

Provide a sketch map of the village showing the relative position of houses of people pursuing different resource use strategies along with important landmarks. The map need not to be exactly to scale.



AN ILLUSTRATIVE EXAMPLE

CHANNAKESHAVAPURA VILLAGE MAP

(Pavagada Taluk, Karnataka State)

Legend to Map (not to scale)

Name of residential colony

1. Shettara mane
2. Oora munde
3. Brahmanara keri
4. Nayakara keri
5. Vokkaligara mane
6. Rangammana mane
7. Madigara hatti
8. Holeyara hatti
9. Hajamara mane
10. Janata mane
11. Hosa ooru

x Hand pump

3. Livelihood strategies of different resource user groups making up the community

Sl. No.	Major basis of livelihood	Supplementary activities	No. of families	Resource user groups	Localities of residence	Living and earth resources significant to livelihood strategies	Types of landscape elements harbouring these significant living and earth resources	Range of distances over which living and earth resources are acquired

An illustrative list of categories of major bases of livelihoods:

I. Dependent on Plantations/Orchard

Plantation/orchard owners - big,

Plantation/orchard owners - small,

II. Dependent on irrigated farmlands

Irrigated landowners - big

Irrigated land owners - small

III. Dependent on dryland farming

Dryland owners - big

Dryland owners - small

IV. Dependent on livestock

Cattle keepers, shepherds, goatherds, migrant shepherds

V. Fisherfolk

Mechanized boat owners

Artisanal fisherfolk

VI. Artisans

Basket weaving, mat weaving, broom making, carpentry, pot making, gold-smithy, black-smithy

VII. Marketing produce

Selling fuelwood, selling NTFPs like soapnut or honey

VIII. Provision of services

Barbers, Medicine men

IX. Landless wage earners

Domestic servants, farm labourers, migrant farm labourers, workers on mechanized boats

X. Migrants - visiting the village

Entertainers, nomadic duck keepers, well diggers

XI. Employed in organized sector

Agricultural extension workers, school teachers

Employees of smallscale industries

XII. Traders

Shop keepers, truck owners

XIII. Smallscale industry

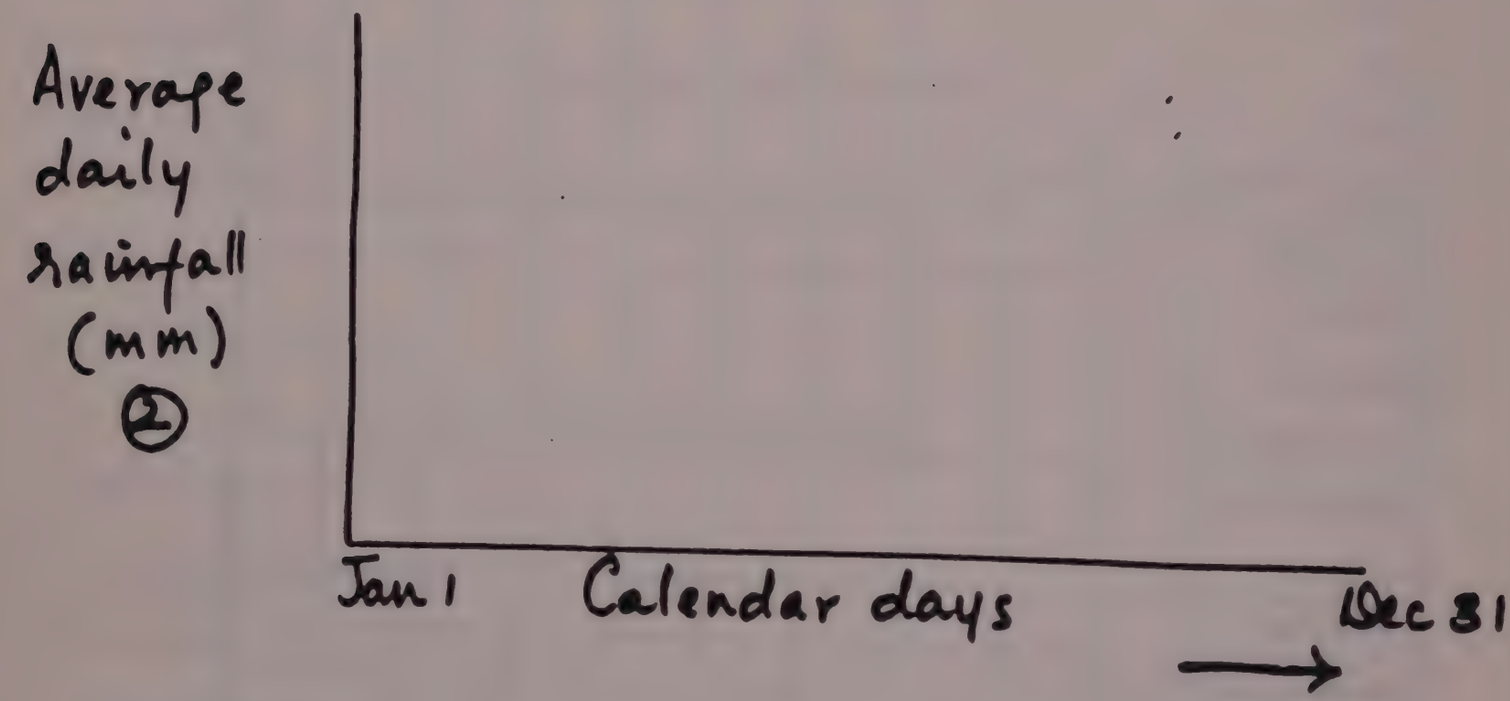
Rice mill owners, sawmill owners, workshop owners

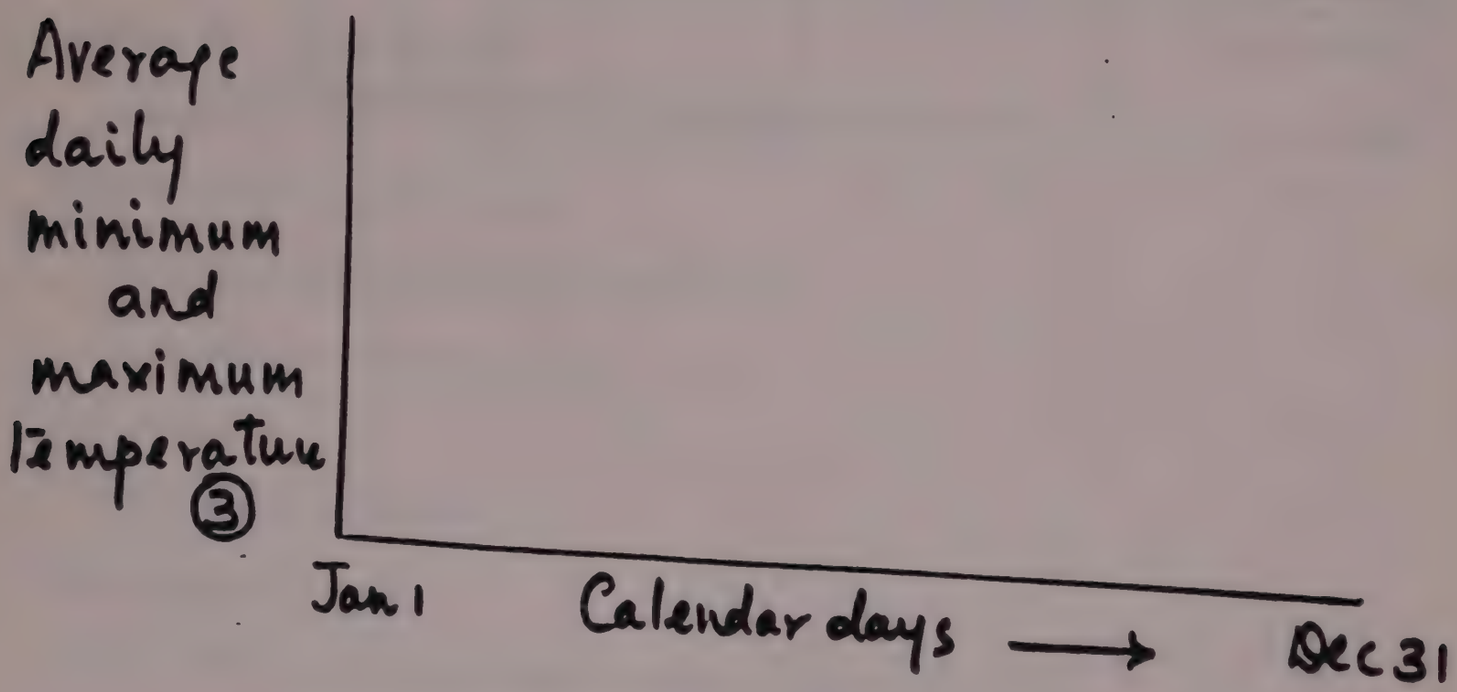
4. Availability of various facilities to different resource user groups / localities

Amenities	User groups / localities									
Drinking water										
Primary education										
Adult literacy										
Curative treatment for simple diseases										
Maternity and child care										
Immunization										
Veterinary care										
Electricity										
Transport and roads										

5. Climate profile of the locality.

Provide rainfall and temperature profile of the locality from the nearest meteorological observation centre.





Note : The daily data should be averaged over all the recorded years available with the meteorological station.

D. PREPARATION OF LANDSCAPE MAP OF RESOURCE CATCHMENT

1. In conjunction with gathering information for section 3 of Part - C, the resource catchment of the community can be delineated on a 1:25,000 Survey of India toposheet. Such resource catchments need not be contiguous, they could be made up of several patches some of which may be located far away from the residences.

2. The relevant portions of map containing the resource catchment should be enlarged to 1:8000 scale (equivalent to village revenue or cadastral maps).

3. From such enlarged portions of the toposheet a map of 1.5m x 1.5m dimension is to be pasted together and should contain the community residential area and all of resource catchment area which can be fitted within this dimension of the map.

4. Portions of resource catchments which cannot be fitted into this 1.5m x 1.5m dimension at 1:8,000 scale should be prepared as convenient sized sub maps.

5. For localities represented in both the 1.5m x 1.5m dimension map and the sub maps relevant village revenue maps should be pasted together at an identical scale to enable overlaying of these maps.

6. Resource catchments should be delineated on the prepared revenue maps and all relevant details from toposheet should be transferred to it using an acetate mylar sheet or tracing paper.

7. In case the revenue village boundaries are not contiguous their positions on the large map need to be fixed using common landmarks on toposheet and revenue maps.

8. The landscape element types may be classified on a system such as given in the Appendix.

9. Specific landscape elements should be assigned an appropriate serial number as well as identified by local names on the map and other features important to the local people could be added to the map.

10. After completion of section E, soil status, surface and ground water status, vegetation and or cropping systems of various LSE should be depicted on a separate copy of the landscape map.

(E) STATUS OF BIODIVERSITY IN THE RESOURCE CATCHMENT

1. List of all landscape element types found in resource catchment of the community with reference to the map.

2. Current status of individual landscape element type.

Name of LSE type ----------

Sl. No. of LSE	Local name of LSE	Approximate area	Ownership	Predominant landuse pattern	Resource user groups involved	Other uses of LSE	Involvement of user groups from other communities	Traditional conventions or legal rights in usage of LSE

3. For each constituent landscape element of the LSE type-------- fill in the relevant tables

SL No.of LSE on landscape map -------- Local name of LSE: ----------

(a) Status of earth resources:

SLNo.	Earth resources	Current status	Significant changes noticed in status of earth resources and their uses
1.	Soil colour and texture		
2.	Soil depth		
3.	Productivity of soil and problematic soils		
4.	Status of surface water		
5.	Status of ground water		
6.	Status of other earth resources like sand, granite etc which have commercial value		

(b) Wild plants including lower plants (algae, mosses, mushrooms, fungi etc.)

Sl. No.	Local name of the resource	Scientific name*	Specially used by any resource user group	Accession no in the herbarium *	Part used	Purposes	Local availability status (rare, frequent abundant)	Changes in availability in recent times

Note : The column "purposes" - the use includes medicine, veterinary, agriculture, dye/cultural etc. - Multiple purposes may be recorded if the uses are diverse.

(c) Cultivated plants and their wild relatives (including lower plants)

Sl. No.	Local name of the resource	Scientific name*	Specially used by any resource user group	Corresponding accession no. in the herbarium*	Part used	Cropping pattern and crop calendar	Local Cultivation/availability status (rare, frequent common)	Change in availability in recent times

(d) Wild Terrestrial animals, birds & invertebrates

Sl. No.	Local name of the resource	Scientific name*	Specially used by any resource user group	Accession No in the museum*	Part used	Purposes	Local availability status (rare, frequent abundant)	Change in availability in recent times

NB : Tables (c) and (d) should also include information on the status of local use - is it vigorous / widespread use or a dying use. If dying out, the reason for it : overexploitation, erosion of skills, legal ban, neglect, habitat loss, lack of acceptance etc.

(e) Domesticated animals, birds etc.

Sl. No.	Local name of the resource	Scientific name*	Specially used by any resource user group	Name of the race/ breed/ cultivar	Accession No in the museum*	Part used	Purposes	Local status (rare, frequent abundant)	Change in availability in recent times

(1) Fish & other aquatic resources

Sl. No.	Local name of the resource	Scientific name *	Specially used by any resource user group	Accession No in the museum*	Part used	Purposes	Local availability status (rare, frequent abundant)	Change in availability in recent times

* - If it is not possible to record scientific names in the field, only the local name can be noted. The corresponding scientific name should be recorded by referring to the herbarium/museum collections at a regional level (taluk or district). Only in such occasions the accession number in the herbarium/museum should be noted.

4. Identify a significant historical event dating back to 30-40 years in terms of transition in resource use patterns like dam construction, charcoal contractors, release of forest or grazing land for cultivation, declaration of sanctuary etc. Provide brief information relating to such an event. The changes in availability in recent times recorded in from table 3.a to table 3.e mentioned above should refer to time following such an event.

5. Problems perceived regarding LSE :

(a) In continuing existing/current usage,

(b) Conservation/promotion of biodiversity in LSE

(c) Priority of various resource user groups in solving the problems of LSE

Resource user group	Problems perceived	Solutions suggested	To be implemented by

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(F) DOCUMENTATION OF KNOWLEDGE SYSTEMS

Listing of notable Individuals (NI) of the village who possess significant knowledge, skills or technologies (K/S/T). Usually they are known to the villagers. However, care should be taken to assess the 'Notable' status of such individuals by verifying from a number of sources in the village, including interviews with such persons to discuss with them their special knowledge in various fields like agriculture, medicine, animal husbandry, veterinary medicine, dyeing, tanning, etc.

At times some applications of resources may be commonly known to all members in a community. The K/S/T's of an resource user group as a whole which specializes in some field may also be recorded. Irulas in snake catching, Burads in basket weaving are examples of a community as a whole which has a special K/S/T (rather than as an individual or a family). Hence care should be taken to see that the same person or group of persons does not get registered both under "Individuals" and "user group".

1. Inventory of Notable Individuals (NI) in the locality

(to be collected from testimony of other local villagers)

Sl. No.	Name and address of the NI	Age & sex	Name of the resource user group to which NI belongs	No. of years of experience	fields of expertise (crop husbandry, animal husbandry, medicine, weaving, etc.)	list, what the (NI) can do in his/her field of expertise

2. Bio-data of each Notable Individual

(i) Name of the outstanding individual

(ii) Field of outstanding K/S/T

(iii) Name of the end products

(Use sketch / photograph / models where possible)

(iv) Details of living resources used/maintained

Sl. No.	Local name of the resource	Scientific name	Name of the race/ breed/ cultivar	Part used	Time of collection

(v) What is/are the beneficial uses of the product(s) ?

(vi) Details of methods of its preparation/cultivation/rearing

(vii) Cultural practices, do's & don'ts :

(viii) Details regarding Notable Individuals

	What is noteworthyl about this outstanding K/S/T	
	what is the origin of the notable K/S/T (inherited, acquired, purely traditional or whether modified from a traditional K/S/T or a non traditional local innovation)	
	extent of access to the notable K/S/T for others in the community (totally restricted, limited, open to all)	
	income generation from notable K/S/T a. full time livelihood for the notable K/S/T b. subsidiary income c. not for money, but for social service NB: Source of this answer should come from others also	
	Attitude to privatization, expectations regarding payment of service charges	
	Other remarks	

3. Details of notable K/S/T known to a specific resource user group as a whole.

(i) Name of the resource user group

(ii) Field of notable K/S/T

(iii) Name of the end products

(Use sketch / photograph / model where possible)

(iv) Details of living resources used as ingredients in notable K/S/T

Sl. No.	local name of the resource	scientific name	name of the race/ breed/ cultivar	part used	time of collection

(v) What is/are the beneficial uses of the product(s) ?

(vi) Details of methods of its preparation :

(vii) Cultural practices, do's & don'ts :

(viii) Details regarding Resource User Group

	What is special about the notable K/S/T	
	what is the origin of the notable K/S/T (inherited, acquired, purely traditional or whether modified from a traditional K/S/T or a non traditional local innovation)	
	extent of access to the notable K/S/T for others in the community (totally restricted, limited, open to all)	
	income generation from notable K/S/T a. full time livelihood for the notable K/S/T b. subsidiary income c. not for money, but for social service NB: Source of this answer should come from others also	
	Attitude to privatization, acceptance of service charges*	
	Other remarks	

* Under ("Attitude to privatization") the person's views about commercial exploitation of the K/S/T either by his own enterprise or by allowing other persons/enterprises to do so on his behalf in return for a fixed royalty, share in profit etc. should be ascertained. For this purpose, in some cases it may be necessary to indicate to the person the possible commercial value of his K/S/T. The local attitudes may very well consider such commercialization to be unethical and immoral. This must also be recorded. Also ascertain if the individual wishes to be paid service charges by the Government or some other public agency to continue practicing some traditional skills or growing some traditional cultivars.

(J) COMMERCIAL USAGE AND CONSERVATION

1. Information regarding the sale of wild living resources

Sale of wild living resources

Sl. No.	local name of the resource	scientific name	Part used or whole plant	Who collects	Season of collection	Place/ Source of collection	for what end use	who sells	to whom	Price	qty sold per month/ year (app.)

2. Processing of wild living resources

Sl. No.	local name of the resource (raw material)	scientific name	part used	Source of raw material	Nature of processing (drying, baking, etc)	Names of processing Equipment, used	purposes	Price of end product	name of processed product	Who are the end users?

3. Effect of ongoing extraction on status biodiversity and earth resources at specific LSE

4. In the event of possible commercial exploitation of living and earth resources or K/S/T

(a) What should be form of regulation of access to such resources

(b) Details of benefits to get in exchange and further sharing / appropriation of benefits by either concerned individuals or entire community.

5. Conservation of living resources

(a) Individual efforts

Name of individual / family :

(1) for domesticated animals, birds, invertebrates, fish

Sl. No.	common name of the animal	name of the breed or race	form of conservation (domestication, farms, wetlands, rivers, beaches etc)	number of animals conserved	conserved by whom (name & address)	reason for conserving the breed	remarks

Note: In case of a domesticated living resource being conserved by an individual/family/community, exact identification of its species, breed, race or cultivar should be ascertained. similarly, the method of conservation needs to be specified, mention may be made under 'remarks' if such a conservation effort is purely due to an individual/community initiative or as part of an externally sponsored program.

(ii) for domesticated plant resources and their wild relatives

(including lower plants)

Sl. No.	common name of the plant	name of the variety/ race/ breed	form of conservation (domestication, home garden, gene bank, seed plot, sacred groves etc)	No. of plants or area planted with the variety	conserved by whom (name & address)	reason for conserving the variety	remarks

Note : For a garden/genetic garden/seed plot/sacred grove/zoo/tank etc. being maintained for conserv various bio-resources, it would be useful to take one or several photographs of the site showing location, area, etc. and date of photography.

(iii) for wild plants resources (including lower plants)

Sl. No.	common name of the plant	form of conservation (domestication, home garden, genetic garden, seed plot, sacred groves etc)	No. of plants or area planted with the variety/Sp.	conserved by whom (name & address)	reason for conserving the variety/ Sp.	remarks

(iv) for wild animals, birds, fish, invertebrates

Sl. No.	common name of the plant	form of conservation (domestication, Sanctuary, wetland, river, well, zoo, sacred pond nesting/roosting places etc)	No. of animals conserved	conserved by whom (name & address)	reason for conserving the variety	remarks

(b) Community efforts

Name of the Resource User Group:

(i) for domesticated animals, birds, invertebrates, fish

Sl. No.	common name of the animal	name of the breed or race	form of conservation (domestication, farms, wetlands, rivers, beaches etc)	number of animals conserved	conser-ved by whom (name & address)	reason for conserving the breed	remarks

(ii) for domesticated plant resources and their wild relatives

Sl. No.	common name of the plant	name of the variety/ race/ breed	form of conservation (domestication, home garden, genetic garden, seed plot, sacred groves etc)	No. of plants or area planted with the variety	conserved by whom (name & address)	reason for conserving the variety	remarks

(iii) for wild plants resources (including lower plants)

Sl. No.	common name of the plant	form of conservation (domestication, home garden, genetic garden, seed plot, sacred groves etc)	No. of plants or area planted with the variety	conserved by whom (name & address)	reason for conserving the variety	remarks

(iv) for wild animals, birds, fish, invertebrates

Sl. No.	common name of the plant	form of conservation (domestication, Sanctuaries, Wetlands, rivers, zoos, nesting / roosting sites etc)	No. of animals conserved	conserved by whom (name & address)	reason for conserving the variety	remarks

(II) CONSERVATION AND DEVELOPMENT

1. Development aspirations and conservation priorities

Resource user group	Development aspirations	LSE	Effect on conservation of biodiversity in specific LSB	
			Beneficial	Deleterious

Note : Development aspirations could pertain to Mining, Quarrying, Agriculture, Irrigation, Tou

Transport, Roads, Industry, Livestock, Fisheries, Education

2. Development plan and conservation efforts

Development plan by				Effect on biodiversity in specific LSBs	
Government departments	Panchayat institutions	commercial interests	LSE	Beneficial	Deleterious

3. Agenda/action plan of local level institutions like youth club, mahila mandal, temple committee, co

councils etc. in relation to their effect on local biodiversity and earth resources.

Local institutions	Ongoing activities	Agenda action plan	LSB	Effect on biodiversity	
				Beneficial	Deleterious

APPENDIX

A TAXONOMY OF LANDSCAPE ELEMENTS

A landscape may be visualized as a mosaic of a number of different individual elements of a variety of landscape element types (LSE types) that are repeated over and over again. An effective description of the landscape therefore requires a system of classification of LSE types. This may be modelled on the hierarchical system of classification of living organisms. Following is one possible scheme of classification of LSE types, devised for the district of Uttara Kannada :

1 Aquatic - freshwater LSE types

1.1 Flowing

1.1.1 Perennial

1.1.1.1 Streamy river along steep slope ($>30^0$)

1.1.1.2 Stream / river along medium slope (15^0-30^0)

1.1.1.3 Streamy river on low slope to plain ($<15^0$)

1.1.1.4 Sewage water canal

1.1.2 Seasonal

1.1.2.1 Streamy river along steep slope ($>30^0$)

1.1.2.2 Streamy river along medium slope (15^0-30^0)

1.1.2.3 Streamy river on low slopes ($<15^0$)

1.1.2.4. Irrigation canals

1.1.3 Waterfall

1.1.3.1 Perennial

1.1.3.2 Seasonal

1.1.4 Riparian

1.1.4.1 River/stream bank

1.1.4.2 River/stream bed (including exposed rocks)

1.2 Stagnant

1.2.1 Seasonal, clear

1.2.2 Seasonal, almost covered with floating / emergent natural vegetation

1.2.3 Perennial clear

1.2.4 Perennial, almost covered with floating/ emergent natural vegetation

1.2.5 Perennial, almost covered with exotic water weeds like *Pistia, Eichhornia, Salvinia* etc.

1.2.6 Dams and reservoirs

1.2.7 Sewage pond

2. Terrestrial natural LSE types

2.1. Forest

2.1.1 Evergreen

2.1.2 Disturbed evergreen

2.1.3 Semi-evergreen

2.1.4 Disturbed semi-evergreen

2.1.5 Moist deciduous

2.1.6 Disturbed moist deciduous

2.1.7 Dry deciduous

2.1.8 Disturbed dry deciduous

2.2. Non-forest

2.2.1 Scrub

2.2.2 Savanna

2.2.3 Grassland

2.2.4 Landslides

3. Terrestrial man-made LSE types :

3.1 Human habitation:

(To include homestead gardens, hedges, walls, compost pits etc.)

3.2 Quarries, mines, mine dumps.

3.3 Roads, cart tracks, foot paths.

3.4 Cultivation- annual/ biennial/ seasonal crops:

3.4.1 Banana

3.4.2 Ginger

3.4.3 Groundnut

3.4.4 Jowar

3.4.5 Pine apple

3.4.6 Potato

3.4.7 Ragi

3.4.8 Paddy

3.4.9 Sugarcane

3.5 Perennial plantation/ orchard crops (LSE to be named after dominant spp.):

3.5.1 Arecanut

3.5.2 Cardamom

3.5.3 Cashew

3.5.4 Cinchona

3.5.5 Clove

3.5.6 Coconut

3.5.7 Coffee

3.5.8 Mango

3.6 Forest tree/ other timber plantations:

3.6.1 *Acacia auriculiformis*

3.6.2 *Albizzia*

3.6.3 *Casuarina*

3.6.4 *Eucalyptus*

3.6.5 Silk cotton

3.6.6 *Tectona grandis*